

Palermo, Oswego county: mean temperature, $17^{\circ}.1$, is $10^{\circ}.6$ below the March average for the last thirty-two years, and is the lowest for that period.

Cooperstown, Otsego county: mean temperature, $18^{\circ}.3$, is the lowest recorded in March since 1850, and is $10^{\circ}.2$ below the average for thirty-five years; the next lowest mean ($19^{\circ}.5$) was that for 1872.

Ohio.—Cleveland: mean temperature, $25^{\circ}.6$, is the lowest recorded in thirty years with the exception of that for 1856, which was $0^{\circ}.7$ lower.

Wauseon, Fulton county: mean temperature, $24^{\circ}.5$, is $8^{\circ}.3$ below the March average for the last fifteen years.

Pennsylvania.—Dyberry, Wayne county: mean temperature, $19^{\circ}.5$, is $9^{\circ}.4$ below the March average for the last twenty years.

Wellsboro, Tioga county: mean temperature, $22^{\circ}.4$, is the coldest by $4^{\circ}.5$ that has occurred during the last thirty years.

Quakertown, Bucks county: mean temperature, $26^{\circ}.4$, is $9^{\circ}.6$ below the March average for the last nine years.

Wilkes Barre: mean temperature, $25^{\circ}.6$, is $8^{\circ}.6$ below the March average for the last fifteen years.

Rhode Island.—Providence: mean temperature, $26^{\circ}.4$, is 7° below the March average for the last fifty-one years.

Texas.—New Ulm, Austin county: mean temperature, $58^{\circ}.0$, is the lowest recorded in March during the last thirteen years, and is $5^{\circ}.2$ below the average for the same period.

Vermont.—Burlington: mean temperature, $19^{\circ}.3$, is the lowest recorded in March for many years.

Woodstock, Windsor county: mean temperature, $17^{\circ}.8$, is $7^{\circ}.4$ below the March average for the last eighteen years. The highest March mean in that period, $33^{\circ}.3$, occurred in 1871: the lowest, $16^{\circ}.8$, occurred in 1872.

Virginia.—Wytheville, Wythe county: mean temperature, $37^{\circ}.0$, is $5^{\circ}.6$ below the March average for a period of twenty years.

Variety Mills, Nelson county: mean temperature, $37^{\circ}.1$, is $7^{\circ}.9$ below the March average for the last eight years, and is the lowest for that period.

Bird's Nest, Northampton county: mean temperature, $40^{\circ}.1$, is, with the exception of that for March, 1872 ($37^{\circ}.6$), the lowest recorded during the last sixteen years.

West Virginia.—Helvetia, Randolph county: mean temperature, $32^{\circ}.6$, is $7^{\circ}.6$ below the March average for the last nine years.

FROSTS.

The dates on which frost occurred during March in the various districts are as follows:

New England.—1st to 31st.

Middle Atlantic states.—1st to 31st.

South Atlantic states.—2d, 3d, 6th to 10th, 14th, 16th to 26th, 29th, 30th, 31st.

Florida peninsula.—Sanford and Mayport, 10th; Newport, 9th, 10th, 11th, 17th, 24th.

East Gulf states.—2d, 3d, 4th, 6th to 11th, 14th, 16th, 17th, 19th to 24th, 29th, 30th.

West Gulf states.—1st, 2d, 3d, 5th, 6th, 7th, 9th, 10th, 15th, 16th, 18th, 20th, 22d, 23d, 29th.

Tennessee.—2d, 3d, 6th to 11th, 14th to 26th, 29th, 30th.

Ohio valley.—Daily, except 12th.

Lower lake region.—Daily, except 1st, 27th, and 31st.

Upper lake region.—1st to 31st.

Extreme northwest.—1st to 31st.

Upper Mississippi valley.—1st to 31st.

Missouri valley.—1st to 31st.

Northern slope.—Daily, except 16th, 23d, and 26th.

Middle slope.—Daily, except 29th.

Southern slope.—Fort Davis, Texas, 2d; Fort Concho, Texas, 2d, 22d, 29th.

Southern plateau.—1st to 10th, 12th to 16th, 18th, 22d, 26th to 29th, 31st.

Middle plateau.—Daily, except 18th.

Northern plateau.—1st to 9th, 12th to 21st, 23d, 24th, 25th, 27th, 28th.

North Pacific coast region.—1st to 4th, 6th, 7th, 8th, 12th, 16th, 17th, 18th, 22d to 31st.

Middle Pacific coast region.—Sacramento, 1st, 3d, 11th, 14th; Princeton, 1st, 2d, 24th; Oakland, 3d; San Rafael, 1st, 2d.

ICE.

Ice formed in the southern parts of the country as follows: Arkansas.—Lead Hill, 2d, 7th, 8th, 9th, 16th, 17th, 18th, 20th to 23d, 29th.

Florida.—Pensacola, 23d.

Georgia.—Augusta, 24th; Athens, 8th, 9th, 10th, 20th, 22d, 23th, 24th.

PRECIPITATION.

[Expressed in inches and hundredths.]

The distribution of rainfall over the United States and Canada, for the month of March, 1885, as determined from reports from more than seven hundred stations, is exhibited on chart iii.

In the following table are shown, for each of the geographical districts, as deduced from Signal Service observations, the average March precipitation for a series of years; the average for March, 1885, and the departures from the normal.

Average precipitation for March, 1885.

Districts.	Average for March Signal-Service ob- servations.		Comparison of March, 1885, with the av- erage for sev- eral years.
	For sev- eral years.	For 1885.	
	Inches.	Inches	Inches.
New England.....	4.52	1.84	-2.68
Middle Atlantic states.....	4.45	1.44	-3.01
South Atlantic states.....	5.37	1.05	-4.32
Florida peninsula.....	2.34	3.31	+0.97
Eastern Gulf states.....	6.56	4.13	-2.43
Western Gulf states.....	4.01	3.06	-0.95
Rio Grande valley.....	1.17	0.98	-0.19
Tennessee.....	6.14	2.57	-3.57
Ohio valley.....	3.88	0.86	-3.02
Lower lake region.....	2.98	0.96	-2.02
Upper lake region.....	2.25	1.38	-0.87
Extreme northwest.....	1.17	0.35	-0.82
Upper Mississippi valley.....	2.53	0.39	-2.14
Missouri valley.....	1.48	0.23	-1.25
Northern slope.....	0.81	0.70	-0.11
Middle slope.....	0.61	0.86	+0.25
Southern slope.....	0.87	3.04	+2.17
Southern plateau.....	1.03	1.06	+0.03
Middle plateau.....	1.48	0.42	-1.06
Northern plateau.....	1.44	0.33	-1.11
North Pacific coast region.....	5.45	0.47	-4.98
Middle Pacific coast region.....	3.54	0.36	-3.18
South Pacific coast region.....	1.69	0.27	-1.42
Mount Washington, N. H.....	6.75	0.95	-5.80
Pike's Peak, Colo.....	1.98	0.88	-1.10

From the above table it will be seen that the precipitation for March, 1885, has been below the average in nearly all districts. Over an area extending from the lower Rio Grande valley northwestward to eastern Arizona, and at a few isolated stations, (principally along the Gulf coast and in the northern part of the upper lake region) the precipitation has been above the average. At Jacksonville, Florida, and San Antonio, Texas, the excess exceeded 2.00, and at Fort Stockton, Texas, it was more than 7.00. The large excess at the station last named was due to the exceptionally heavy rains on the 14th and 15th, when 6.25 fell. At Jacksonville, Florida, the precipitation for the month was nearly double the average. At other stations where the precipitation was excessive, the departures were small. As in the preceding month the most marked feature in connection with the precipitation was the extensive area of deficiency, which included all of the country with the exceptions named above. In all districts east of the Mississippi river, (except Florida and the upper lake region), and also in the north and middle Pacific coast regions the deficiencies averaged above 2.00. In the districts where the largest deficiencies occurred the monthly precipitation as compared with the average was as follows: New England, less than one-half; Tennessee, lower lake region, extreme north-west and middle Atlantic states, about one-third; south At-

lantic states, less than one-fifth; Gulf states, from two-thirds to three-fourths; Ohio valley, less than one-fourth; upper Mississippi and Missouri valleys, less than one-sixth; north and middle Pacific coast region, less than one-tenth; and on the south Pacific coast about one-sixth.

Table of excessive and greatest monthly precipitation, March, 1885.

Station.	Specially heavy.		Largest monthly.	Station.	Specially heavy.		Largest monthly.
	Date.	Amt.			Date.	Amt.	
<i>Alabama.</i>				<i>Louisiana.</i>			
Mount Vernon B'k	21	2.10	7.89	New Orleans	21	2.24	6.99
Do	26 to 29	4.54		New Iberia	21	2.55	6.43
Mobile			6.36	Luling	20, 21	2.55	
Clintonville	27, 28	4.12	6.21	Point Pleasant	25	2.01	
Edwardsville	27, 28	2.93		Do	28	3.01	
Gadsden	27, 28	2.55		Donaldsonville	21	2.10	
Jacksonville	27, 28	3.00		Mandeville	21	2.35	
Newton	27, 28	2.60		<i>North Carolina.</i>			
<i>Florida.</i>				Kitty Hawk	22	2.17	
Fort Barrancas	21	4.75	8.55	<i>Tennessee.</i>			
Sanford	21, 22	2.21		Greenville	27, 28	2.30	
Jacksonville	21, 22	2.59		<i>Texas.</i>			
Newport	28	2.04		Fort Stockton	14, 15	6.25	7.78
				Huntsville	15	2.50	

DEVIATIONS FROM AVERAGE PRECIPITATION.

The departures exhibited by reports from the regular Signal Service stations are shown in the table of average precipitation for the several districts and in the table of miscellaneous meteorological data. The following notes in connection with this subject are reported by voluntary observers:

Arkansas.—Lead Hill, Boone county: monthly precipitation, 3.60; the average for March for the three preceding years is 3.66.

California.—Hydesville, Humboldt county: monthly precipitation, 0.24, is the smallest that has occurred in March for several years; it is nearly 7.00 below that for March, 1884.

Connecticut.—Hartford: monthly precipitation, 0.93, is 3.51 below the March average for the last thirteen years, and is the smallest that has occurred in March during that period.

Dakota.—Webster, Day county: monthly precipitation, 0.71, is considerably below the average for March.

Georgia.—Milledgeville: monthly precipitation, 3.32, is 5.55 below the average for March.

Illinois.—Mattoon, Coles county: monthly precipitation, 0.58, is 3.15 below the March average for the last five years.

Anna, Union county: monthly precipitation, 1.43, is 2.67 below the March average for the last ten years.

Swanwick, Perry county: monthly precipitation, 0.82, is 2.40 below the March average for the last three years.

Riley, McHenry county: monthly precipitation, 0.20, is the least recorded during the last twenty-four years, the smallest previously recorded being 0.89; the average for March during the period above named is 2.64.

Peoria, Peoria county: monthly precipitation, 0.24, is 2.44 below the March average for the last thirty years.

Sycamore, DeKalb county: monthly precipitation, 0.55, is 1.96 below the March average for the three preceding years.

Indiana.—Vevay, Switzerland county: monthly precipitation, 1.58, is 2.45 below the March average for the last twenty-one years. During the month snow fell to a depth of seven inches, which exceeds by four inches the average snowfall for March.

Sunman, Ripley county: monthly precipitation, 0.35, is the least recorded in March for several years.

Spiceland, Henry county: monthly precipitation, 0.72, is 3.14 below the March average for the last twenty-five years. The monthly snowfall, five inches, is one-half inch below the average for the same period.

Kansas.—Independence, Montgomery county: monthly precipitation, 1.31, is 0.82 below the March average for the last thirteen years.

Wellington, Sumner county: monthly precipitation, 2.02, is 0.58 in excess of the March average for the last seven years.

Yates Centre, Woodson county: monthly precipitation, 1.16, is 0.15 below the March average for the last five years.

Lawrence, Douglas county: monthly precipitation, 0.87, is 1.34 below the March average for the last seventeen years.

Maine.—Gardiner, Kennebec county: monthly precipitation, 2.18, is 0.70 below the March average for a period of forty-nine years.

Maryland.—Fallston, Harford county: monthly precipitation, 1.44, is 3.34 below the March average for the last fourteen years.

Massachusetts.—Somerset, Bristol county: monthly precipitation, 1.14, is 3.95 below the March average.

Worcester, Worcester county: monthly precipitation, 0.90, is 2.77 below the March average for a period of forty-seven years.

Nevada.—Carson City: monthly precipitation, 0.31, is 1.87 below the March average.

New Hampshire.—Contoocook, Merrimack county: monthly precipitation, 0.82, is nearly 3.00 below the March average.

New Jersey.—Moorestown, Burlington county: monthly precipitation, 1.08, is 2.44 below the March average for the last twenty-two years, and is the least by 0.34 that has occurred during that period.

South Orange, Essex county: monthly precipitation, 0.81, is the least that has been recorded during the last fifteen years, and is 2.89 below the average.

New York.—North Volney, Oswego county: monthly precipitation, 0.90, is 2.11 below the average for the last thirteen years, and is the least, by 1.10, that has occurred during that period.

Palermo, Oswego county: monthly precipitation, 0.68, is 2.34 below the March average for the last thirty-two years. The monthly snowfall, six and one-half inches, is eight inches below the March average.

Ohio.—Wauseon, Fulton county: monthly precipitation, 0.62, is 2.68 below the March average for the last twelve years. The monthly snowfall, five inches, is less than one-half of the March average.

Pennsylvania.—Dyberry, Wayne county: monthly precipitation, 1.03, is 1.99 below the March average for the last seventeen years. The snowfall, twelve inches, is three inches below the March average for a period of thirty-one years.

Rhode Island.—Providence: monthly precipitation, 1.02, is 3.00 below the March average for a period of fifty-four years, and, with the exception of that of March, 1855, is the least recorded in that period.

Texas.—New Ulm, Austin county: monthly precipitation, 2.14, is 3.24 below the March average for the last thirteen years, and is the least recorded in March during that period; the largest, 13.13, occurred in 1883.

Virginia.—Wytheville, Wythe county, monthly precipitation, 1.49, is 2.15 below the March average for a period of twenty years.

Variety Mills, Nelson county: monthly precipitation, 1.22, is 3.13 below the March average for the last six years.

West Virginia.—Helvetia, Randolph county: monthly precipitation, 2.54, is 2.46 below the March average for the last nine years.

SNOW.

The dates on which snow fell in the various districts are as follows:

New England.—Daily, except 6th, 11th, 22d, and 23d.

Middle Atlantic states.—Daily, except 5th, 11th, 21st, 26th, and 27th.

South Atlantic states.—8th, 17th to 20th, 22d, 23d, 29th.

East Gulf states.—Birmingham, Alabama, 8th.

West Gulf states.—Lead Hill, Arkansas, 7th, 8th.

Tennessee.—6th, 7th, 8th, 15th, 17th, 18th, 19th, 21st, 22d, 28th.

Ohio valley.—1st, 2d, 3d, 6th to 25th, 28th, 29th.

Lower lake region.—Daily except 22d, 26th, and 27th.

Upper lake region.—Daily, except 8th and 21st.

Extreme northwest.—Daily, except 9th, 16th, 23th, and 31st.

Upper Mississippi valley.—1st, 3d to 8th, 12th to 18th, 20th, 21st, 22d, 24th, 27th to 30th.

Missouri valley.—1st, 3d to 8th, 14th to 24th, 27th, 28th, 29th.

Northern slope.—2d to 7th, 12th, 14th to 18th, 20th to 24th, 26th to 29th.

Middle slope.—3d, 4th, 6th, 11th, 12th, 15th, 16th, 17th, 20th to 28th.

Southern plateau.—Santa Fé, New Mexico, 1st, 14th, 18th, 20th, 21st; Gallinas Springs, New Mexico, 20th, 21st.

Middle plateau.—10th to 13th, 21st to 24th, 26th.

The following notes relate to the severest snow-storms of the month.

Mackinaw City, Michigan: the heavy snow and high winds on the 14th caused blockades on the railroads; all trains were delayed; the snow blockade continued on the 15th.

Mackinaw City, Michigan: on the 24th trains were delayed from four to twelve hours on account of snow blockades.

Grand Haven, Michigan: reports from the northern and central parts of the state on the 15th stated that the snow-storm of the 14-15th was very heavy. At Petoskey, Emmett county, the snow drifts were from two to three feet deep. The storm was also equally as severe at Sheboygan and Tawas City.

Yorkville, York county, South Carolina: snow fell to a depth of ten inches at this place during the night of the 17-18th.

Pickens, Pickens county, South Carolina: snow fell to a depth of eight inches during the night of the 17-18th; in places it drifted to a depth of twelve inches.

Kitty Hawk, North Carolina: the heaviest snowfall that has been known here for a number of years occurred on the 18th. In places along the beach snow drifted to depths of from two to four feet; the average of several measurements at 7 a. m. was six inches. Reports from Roanoke Island stated that at that place the snow fell to a depth of two feet. The snowflakes, which were very moist, stuck to the sides of buildings and weighed down trees and shrubbery. From 1 a. m. until daylight, during the storm, there was an almost incessant display of lightning.

Woodstock, New Brunswick: the severest snow-storm of the season prevailed on the 19th; snow fell to a depth of sixteen inches, blocking nearly all railway lines.

Saint John, New Brunswick: the snow-storm of the 19th was very severe, snow fell to a depth of nearly two feet; all railroads were obstructed.

Halifax, Nova Scotia: reports from Yarmouth on the 20th stated that the snowfall for the forty-eight hours preceding that date, was unusually heavy, and rendered the highways and railroads impassable; the snow-storm continued on the 20th.

Oswego, New York: the snow-storm of the 21st caused delay of trains on the Rome, Watertown and Ogdensburg railroad. Near Richland the snow drifts were reported to have been seven feet deep.

Danville, Virginia: on the 22d a heavy snow-storm prevailed in this section, the snow falling to a depth of ten inches.

Petersburg, Virginia: a heavy snow-storm set in during the early morning of the 22d; snow fell to a depth of eight inches.

Norfolk, Virginia: the heaviest snowfall known for several years occurred on the 22d; snow fell to a depth of four inches and six tenths, which is the greatest depth that has fallen at any time in March since this station was opened.

London, Ontario: on the 24th, the most serious snow blockade of the season obstructed the London, Huron and Bruce railroad.

Hartford, Connecticut: the snowfall of the 29th was the heaviest of the winter.

MONTHLY SNOW-FALLS.

[Expressed in inches and tenths.]

Monthly snow-falls of three inches or more were reported from the various states and territories during the month as follows:

Colorado.—Pike's Peak, 13.5; Pueblo, 4.

Connecticut.—North Colebrook, 18; Norfolk, 11.2; Bethel, 6.6; New Haven and New London, 6.2; Hartford, 5.5; Voluntown, 4.2.

Dakota.—Deadwood, 32.5; Webster, 4.9.

District of Columbia.—Washington City, 3.8; West Washington, 3.2.

Illinois.—Anna, 7; Golconda, 6.5; Marion, 6.4; McLeansboro, 5.5; Mascoutah, 4.4; Sandwich, 4; Chicago, 3.6; Fairfield and Sycamore, 3.5; Bunker Hill, 3.4; Pana and Swanwick, 3.

Indiana.—Logansport, 9.6; Huntingburgh, 7.5; Princeton, Farmland, and Vevay, 7; Blue Lick and La Grange, 5.8; Salem, 5.6; Marengo, Wabash, and Spiceland, 5.5; Mauzy, 5.4; Degonia Springs, 5; Indianapolis, 4.6; Knightstown, 4.2; Greencastle, 4.1; Fort Wayne, 4; Guilford, 3.9; Miami and Monticello, 3.5; La Fayette, 3.4; Connersville, 3.3; Laconia, 3.2; Corydon and Franklin, 3.

Iowa.—West Union, 8.7; Cresco, 6.5; Dubuque, 6.1; Independence, 5.4; Logan, 3.

Kansas.—Wyandotte, 4.8; Lawrence, 4; Clay Center, 3.8; Atchison, 3.2; Holton, 3.

Kentucky.—Frankfort, 4.3; Louisville, 4.2.

Maine.—Eastport, 17.4; Cornish, 17; Orono, 15; Gardiner and Portland, 11; Waterville, 7.5.

Maryland.—Fallston, 6.6; Cumberland, 6; Baltimore, 5.9.

Massachusetts.—Rowe, 20; Princeton and Deerfield, 11; Boston, 9.5; Amherst, 9; Westborough, 7.8; Williamstown, 6.5; Leicester, 5.5; Somerset, 5.2; Fall River, 5; Worcester, 4.8; Milton, 4.5; Taunton, 4.5; New Bedford, 4; Readville, 3.1.

Michigan.—Manistique, 29.8; Marquette, 25.6; Boyne, 23.8; Traverse City, 20.1; Mackinaw City, 19.4; Escanaba, 16.7; Thornville, 15.5; Harrisonville, 14.8; Alpena, 13.2; Moorestown, 12.5; Ann Arbor, 10.8; Ionia, 9.7; Kalamazoo, 8.5; Detroit, 7.7; Lansing, 6.4; Northport, 5.9; Swartz Creek, 5; Grand Haven, 4.7; Port Huron, 3.2.

Minnesota.—Chester, 8.5; Northfield, 8.1; Duluth, 7.9; Minneapolis, 6.4; Saint Vincent, 5.5; Saint Paul, 3.8; Moorhead, 3.2.

Missouri.—Springfield, 6.0; Lamar, 4.8; Pierce City, 3.5.

Montana.—Fort Custer, 8.3; Fort Maginnis, 6.8.

Nebraska.—Genoa, 4.4; Madison, 4.2; Nebraska City, 4; North Platte, 3.7; Ogalalla and Tecumseh, 3.5; Weeping Water, 3.

New Hampshire.—Contoocook, 9.5; Mount Washington, 7.4.

New Jersey.—Dover, 8.4; Somerville, 6.5; South Orange, 6.2; Phillipsburg, 6; Cape May, 5.5; Moorestown, 5.

New Mexico.—Santa Fé, 8.2.

New York.—Humphrey, 15.2; Cooperstown, 10; Mountainville, 9.8; Buffalo, 7.3; Ithaca, 7.1; Auburn, 7; Menand Station, 6.6; Palermo, 6.5; New York City, 5.9; Le Roy, 5.2; Albany, 4.7; Rochester, White Plains, and Factoryville, 3.5; Oswego, 3.1.

North Carolina.—Charlotte, 11.7; Chapel Hill, 9.5; Weldon, 8.5; Statesville, 5.5; Lenoir, 5.

Ohio.—Garrettsville, 10.5; Hiram, 9.5; Wauseon, 5.1; Portsmouth, 4.8; Ruggles and Sandusky, 4.5; Tiffin, 4; North Lewisburg, 3.5; College Hill, 3.

Pennsylvania.—Grampian Hills and Erie, 14; Dyberry, 12; Leetsdale, 11.8; Easton and South Bethlehem, 10; Quakertown, 9.5; Wellsboro, 8.5; Wilkes Barre, 8.1; Germantown, 8; Blooming Grove, West Chester, and Pittsburg, 7.5; Catawissa, 7.4; Troy, 7.2; Chambersburg, 5.9; Drifton, 5.5; Mahanoy Plane, 4.5; Haverford College, 3.3; Philadelphia, 3.2.

Rhode Island.—Providence, 3.8.

South Carolina.—Pacolet, 11.

Tennessee.—Milan, 12; Beech Grove, 11; Ashwood, 9.8; Trenton, 9.5; Florence, 9.2; Henderson, 9; Manchester, 8.2; Dyersburg, Dresden, and Flat Creek, 8; Farmingdale, 7.6; Sweet Water and Hardison's Mills, 7.5; Pulaski, 7; McKenzie, Paris, and Savannah, 6.8; Hurricane Swath, and Dickson, 6.2; Grief, Fostoria, and Howell, 6; Knoxville, 5.5; Covington, 4.2; Austin, 3.8; Bolivar, 3.6; Riddleton, 3.4; Parksville, 3.

Utah.—Promontory, 8.5.

Vermont.—Lunenburg, 22; Strafford, 20.5; Woodstock, 20; Newport, 19.5; Dorset, 14.2; Burlington, 9; Charlotte, 5; Post Mills, 4.

Virginia.—Bird's Nest, 9.0; Norfolk, 6.4; Bruington, 6; Marion, 5; Blacksburg, 4; Cape Henry, 3.9; Dale Enterprise, 3.5.

West Virginia.—Helvetia, 17.8; Wellsburg, 8.5.

Wisconsin.—Embarras, 10.8; Franklin, 10; Neillsville, 9.5; Sussex, 8.8; Manitowoc, 7.0; Madison, 5.3; La Crosse, 3.6.

DEPTH OF UNMELTED SNOW ON GROUND AT END OF THE MONTH.

[Expressed in inches and tenths]

Colorado.—Pike's Peak, 8.

Connecticut.—North Colebrook, 9; Norfolk, 4; Hartford, trace.

Dakota.—Fort Buford, trace.

Iowa.—Guttenburg, trace.

Kansas.—Atchison, trace.

Maine.—Gardiner, 20; Orono, 12; Eastport, 10; Waterville, 3; Portland, trace.

Maryland.—Fallston, trace.

Massachusetts.—Rowe, 26; Deerfield, 10.5; Leicester, 1; Williamstown, drifts; Boston, Amherst, Princeton and Readville, trace.

Michigan.—Marquette, 41; Mackinaw City, 36; Boyne, 30; Manistique, 29; Moorestown, 25; Traverse City, 15; Swartz Creek, 10; Grand Haven, 7; Ionia, 6; Northport, 3.2; Alpena, 3; Port Huron, 1.5; Ann Arbor, 0 to 12; Detroit, 0 to 2; Escanaba, trace.

Minnesota.—Saint Vincent, 3; Duluth, 1; Saint Paul and Northfield, trace.

Montana.—Fort Maginnis, trace.

New Hampshire.—Mount Washington, 24; Contoocook, 9.

New Mexico.—Santa Fé, 30 inches in mountains, none in valleys.

New York.—North Volney, 18; Palermo, 11; Humphrey, 8; Penn Yan, 6; Le Roy, 4 to 6; Cooperstown, 2.5; Oswego, Auburn, and Rochester, drifts; Albany, Buffalo, Ithaca, Menand Station, and Mountainville, trace.

Ohio.—Ruggles, drifts; Toledo, Wauseon, and Hiram, trace.

Pennsylvania.—Grampian Hills, 12; Dyberry, 7; Wellsboro, 4.5; Mahanoy Plane, 4; Chambersburg, Catawissa, Quakertown, Wilkes Barre, Troy, and Drifton, trace.

Vermont.—Woodstock and Charlotte, 18; Post Mills, 12; Dorset, 11; Burlington, 4; Strafford, 3.

Wisconsin.—Embarras, 16; Neillsville, 4; La Crosse, trace.

SLEET.

Colorado.—Pike's Peak, 25th, 26th.

Dakota.—Yankton, 3d; Webster, 3d, 27th.

Georgia.—Atlanta and Augusta, 18th.

Indiana.—Sunman, 30th; Indianapolis, 1st, 3d, 6th, 7th, 10th.

Iowa.—Dubuque, 1st; Guttenburg, 5th.

Kansas.—Independence, 16th.

Maryland.—Emmitsburg, 12th.

Minnesota.—Duluth, 31st; Saint Vincent, 13th; Fort Snelling, 3d.

Missouri.—Lamar, 21st.

Montana.—Fort Assinaboine, 2d.

New York.—Rochester and Oswego, 15th.

North Carolina.—Smithville, Wilmington, and Scott's Hill, 18th; Charlotte, 23d.

Ohio.—Cincinnati, 10th; Cleveland, 30th.

Tennessee.—Nashville, 22d; Memphis, 17th, 21st, 22d.

HAIL.

Hail is reported to have fallen in the following states and territories:

Alabama.—Birmingham and Greensboro, 12th.

Arizona.—Fort Bowie, 12th; Fort Apache, 14th; Prescott, 24th, 25th.

Colorado.—Montrose, 12th, 22d, 26th, 27th.

Dakota.—Fort Yates, 3d; Fort Randall, 5th; Fort A. Lincoln, 29th; Fort Meade, 27th, 29th.

Georgia.—Athens, 27th.

Illinois.—Riley, 14th; Anna, 28th.

Indiana.—Vevay, 14th, 29th; LaFayette, 30th.

Kansas.—Sherlock, 23d.

Louisiana.—Liberty Hill, 27th; Point Pleasant, 28th.

Montana.—Fort Benton, 4th.

Nevada.—Carson City, 18th.

New Mexico.—Lava, 1st.

Ohio.—Yellow Springs, 14th; Garrettsville, 30th.

Oregon.—Lakeview, 10th; Fort Klamath, 10th.

Tennessee.—Nashville, 6th.

Texas.—Fort Stockton, 14th; Cleburne, 11th; Fort Davis, 1st, 10th.

Wisconsin.—Embarras and Sussex, 14th.

PRECIPITATION FROM A CLOUDLESS SKY.

Key West, Florida: from 9.10 to 9.23 p. m. on the 7th Light rain fell when no clouds were visible except along the southern horizon and below an altitude of 30°.

Hiram, Portage county, Ohio: snow fell from a clear sky on the evening of the 10th.

Bloomington, Illinois: shortly after midnight of the 14–15th, when the sky was entirely clear, snow fell for about thirty minutes, covering the ground to the depth of about three-fourths of an inch.

WINDS.

The most frequent directions of the wind during March, 1885, are shown on chart ii. by arrows flying with the wind. In the upper Mississippi and Missouri valleys, east Gulf states, and Tennessee they were from the northwest; in the lake region, Ohio valley, and on the Atlantic coast they were generally from the northwest to southwest; in the west Gulf states, Rocky mountain regions, and on the Pacific coast they were variable.

HIGH WINDS.

(In miles per hour.)

During the month of March velocities of fifty or more miles per hour were recorded at stations as follows:

On the summit of Mount Washington, New Hampshire, 84, sw., 1st; 68, nw., 2d; 62, nw., 5th; 62, nw., 6th; 80, nw., 9th; 92, w., 10th; 84, nw., 11th; 76, nw., 12th; 56, w., 14th; 80, sw., 15th; 76, w., 16th; 72, w., 17th; 116, nw., 20th; 128, nw., 21st; 88, nw., 22d; 68, nw., 24th; 68, w., 25th; 50, w., 26th; 80, sw., 27th; 71, w., 28th; 76, n., 29th; 70, n., 30th; 83, w. and sw., 31st.

Pike's Peak, Colorado, 58, w., 4th; 72, nw., 6th; 52, w., 17th; 52, w., 22d; 50, n., 28th; 64, w., 29th; 53, w., 30th.

Cape Mendocino, California, 56, se., 8th; 56, se., 17th.

Sandy Hook, New Jersey, 53, nw., 10th.

Fort Buford, Dakota, 58, w., 2d.

Fort Shaw, Montana, 53, w., 15th.

Rochester, New York, 52, w., 15th.

Buffalo, New York, 56, sw., 9th; 56, sw., 15th.

Kitty Hawk, North Carolina, 52, ne., 22d.

Fort Macon, North Carolina, 60, sw., 29th.

Tatoosh Island, Washington Territory, 50, e., 7th.

LOCAL STORMS AND TORNADOES.

Navo, Denton county, Texas: a tornado occurred at this place at 5 p. m. on the 11th; no persons were killed, but several were injured; five dwellings, a store, and numerous out-buildings were destroyed. The tornado cloud moved in a northeasterly direction.

Gainesville, Cooke county, Texas: a tornado occurred eight miles southeast of this place at 4 p. m. on the 11th; its path was from 1,320 to 2,640 feet in width. Two dwellings, together with much fencing were destroyed. The tornado moved in a northeasterly direction; it was preceded by a thunder-storm, and was accompanied by hail and rain.

Van Alstyne, Grayson county, Texas: at eight p. m. on the